

# Jacob Singer

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## EDUCATION

### Binghamton University, State University of New York

*Bachelor of Science in Computer Science, Scholars Program, cum laude*

- GPA: 3.72/4.00 | Dean's List (6x) | President's Honors, Binghamton University

Binghamton, NY

Aug. 2020 – May. 2024

## EXPERIENCE

### Software Engineer

Aug. 2024 – Present

*CodeHS*

*Chicago, IL*

- Worked full-stack with Django, MySQL, and React to deliver production features to a platform serving over 6 million students.
- Built the Typing Platform, shaping activity types, lesson flow, and UX while implementing LMS pages for teachers and students; now used by thousands of students.
- Developed AI products including the AI Creator (Django-based content generation tool for teachers) and AI Chat (Django + React tutoring assistant with multi-layer validation), widely adopted to improve curriculum support and student guidance.
- Drove a developer experience initiative by integrating agentic AI tools (Claude Code, Cursor) into workflows, reworking APIs for MCP support, and writing internal docs; increased team PR throughput ~88% and cut PR prep time ~72% (May–Oct '25).
- Created an internal CLI using InkJS, CommanderJS, and Bash to streamline developer workflows, enabling fast worktree switching and boosting team productivity.
- Rebuilt bool.com's frontend with React and daisyUI and overhauled structured LLM data streaming with Pydantic AI and Redis on PostgreSQL; platform scaled to 1,300+ users and 8,000+ websites created.

### Computer Science Course Assistant

Jan. 2023 – May. 2024

*Binghamton University*

*Binghamton, NY*

- Led weekly lab sections for CS310: Data Structures and Algorithms, guiding 200+ students through C++, data structures, and algorithm implementation.
- Held office hours to provide one-on-one conceptual and technical support for students navigating challenging coursework.
- Collaborated with the course instructor to refine assignments and ensure alignment with course learning objectives.

### Software Engineer Intern

Jun. 2023 – Aug. 2023

*CodeHS*

*Chicago, IL*

- Developed the CodeHS Elementary Platform in Django, focusing on the LMS, Ready-to-Go lessons, and integrations with Scratch and ScratchJr, supporting millions of students.
- Designed the UI/UX for CodeHS Elementary in Figma and implemented the frontend with HTML, CSS, and JavaScript, delivering a consistent and accessible experience for students and teachers.
- Built internal admin tools for curriculum and marketing teams, streamlining workflows and enabling faster course development.

## PROJECTS

### BookBox Distributed Library System | *Next.js, React, PostgreSQL, Docker, Python*

Aug. 2023 – Dec. 2023

- Developed a distributed library system to reduce book check-out times through decentralized nodes.
- Implemented a Next.js web app with a REST API and React frontend, backed by a PostgreSQL database.
- Built a Python client for Raspberry Pi nodes, sending sensor data and updates via HTTP requests.
- Containerized services with Docker Compose for consistent backend and database deployment.

### Research: Musical Features & Sentiment Analysis | *Python, Pandas, Next.js*

Aug. 2023 – Dec. 2023

- Analyzed the influence of tempo, key, and loudness on user sentiment across social media posts.
- Applied machine learning models in Python to identify correlations between musical characteristics and sentiment trends.
- Built a Next.js web app with interactive visualizations, allowing users to explore sentiment trends dynamically.

### Unchain: Addiction Recovery Web Application | *React, Firebase*

Aug. 2021 – Sep. 2021

- Built a React + Firebase web application to support individuals in addiction recovery through accessible digital tools.
- Implemented achievement tracking for days of sobriety, providing users with motivation and a sense of progress.
- Developed a panic button feature connecting users to hotlines and tailored support services.

## TECHNICAL SKILLS

**Languages:** Python, JavaScript, TypeScript, C++, Java, Swift, SwiftUI, HTML5, CSS3

**Frameworks:** Django, Next.js, Node.js, React

**Tools:** Git, Docker, SQL, PostgreSQL, Firebase, Unix, AWS, MCP, Cursor, Claude Code, Pydantic AI, Linear, Figma